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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,815	11/22/2002	Ivett Alejandra Leyva	125466	9641

7590 05/03/2005

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EXAMINER
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SUKMAN, GABRIEL S

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/065,815

Applicant(s)

LEYVA ET AL.

Examiner

Gabriel S. Sukman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 11-15 and 21-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8-10 and 16-20 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/2/02.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 2-5, 11-15, and 21-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 31 January 2005.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 8-10, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2,982,495 to Griffith in view of U.S. Patent No. 6,637,187 B2 to Sanders et al. (hereinafter referred to as Sanders).

Griffith discloses all of the limitations of claim 1 except that the engines utilized in the invention are gas turbine engines and not pulse detonation engines as claimed. The aircraft of Griffith includes an airfoil (12) and a plurality of gas turbine engines (14) distributed along the trailing edge of the airfoil as can be seen in figure 1, and figure 5 depicts a configuration in which the engines are positioned beneath the airfoil (indicated by the dashed line). The engines of Griffith are clearly movably configured so as to alter a direction of the thrust force relative to the airfoil. The concept of the invention of Griffith revolves around the then-novel idea of tilting engines located at the trailing edge

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of a wing, either independently or in tandem (see col. 5, lines 24-31), and is not dependent upon the specific type of engine used. The invention of Sanders is a modification of a modern pulse detonation engine and provides a teaching that pulse detonation engines provide several advantages over the turbojet and turbofan engines of the prior art. Sanders discloses that gas turbine engines "are generally limited to flight speeds less than Mach 3 because of high temperatures" and that "[t]he current demand is for more fuel efficient, simpler, and lighter weight engine systems." Further, Sanders teaches that

[p]redicted performance for pulse detonation engines indicates that these engines offer increased efficiency over current systems, and that this increased efficiency is available over a wide range of flight speeds. The PDE offers several additional advantages over a conventional turbomachinery based engine system. These engines offer simplicity and light weight. The PDE is scalable over a range of sizes, and very small engines are possible. They also offer geometric flexibility that allows a wider range of more efficient propulsion/airframe integration schemes.

See col. 1, lines 19-35. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize pulse detonation engines with the tiltable lift engine arrangement taught by Griffith since pulse detonation engines are well recognized as a more advanced and capable engine,

as evidenced by the disclosure and teachings of Sanders, and serve as a modern replacement for the gas turbine engines known in the prior art.

The limitations of claims 8 and 9 are taught by the modified invention of Griffith since Griffith teaches the feature of selectively activating and deactivating each of the engines in col. 5, lines 24-31 and it would have been obvious to utilize this feature in a similar configuration that has PDE's since it applies to a control-related aspect and is not engine type-specific.

The limitations of claim 10 are clearly taught by the modified invention of Griffith since two airfoils are disclosed.

The limitations of claims 16 and 18 are taught by the modified invention of Griffith since a circle is a special case ellipse and, accordingly, the identification of a semi-major axis is arbitrary and is therefore oriented along the airfoil.

The limitations of claims 17 and 19 are also taught by the modified invention of Griffith since the tailoring of the cross-sectional areas of pulse detonation engines requires only routine skill in the art and, thus, it would have been obvious to design the engines as having either a smaller inlet and a larger outlet or having a larger inlet and a smaller outlet. The presence of both claims 17 and 19, each claiming the opposite configuration, serves to prove this fact since it is clear that there is no criticality to either configuration and, as such, the optimization of the appropriate cross-sectional area distribution is a matter of design choice.

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The limitations of claim 20 are clearly taught by the modified invention of Griffith, as seen by the separators in figure 4.

***Allowable Subject Matter***

Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

Applicant's arguments with respect to claims 1, 8-10, and 16-20 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 2,589,732 to Riviere

U.S. Patent No. 3,099,420 to Messerschmitt et al.

U.S. Patent No. 2,514,639 to Haack

U.S. Patent No. 2,568,021 to Northrop

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel S. Sukman whose telephone number is (703)

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308-8508. The examiner can normally be reached on M-F, 8:30-6:00, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MICHAEL J. CARONE  
SUPERVISORY PATENT EXAMINER